NEWSLETTER

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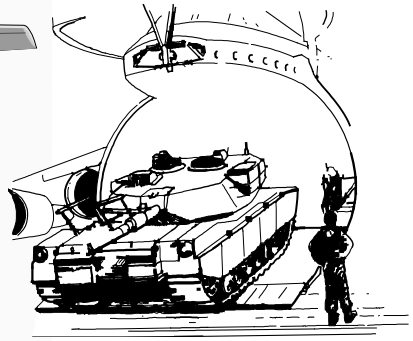
Tactics, Techniques and Procedures from

TASK FORCE HAWK DEEP OPERATIONS: Volume III



Operation ALLIED FORCE

CENTER FOR ARMY LESSONS LEARNED (CALL)
U.S. ARMY TRAINING AND DOCTRINE COMMAND (TRADOC)
FORT LEAVENWORTH, KS 66027-1350

"The Albanians should be a free people, able to worship however they see fit. I'm honored to be a part of this cause." --Task Force Hawk soldier

FOREWORD

This publication is the third of a three-volume set of Center for Army Lessons Learned (CALL) newsletters, which introduces tactics, techniques and procedures (TTPs) employed by Task Force (TF) Hawk supporting Operation ALLIED FORCE in Albania from April through July 1999. The combat, combat support and combat service support TTPs and lessons discussed provide insights into how TF Hawk solved a myriad of operational challenges in preparing for deep operations. Factors that challenged task force planners included mountainous terrain, lack of host-nation infrastructure, restrictive Rules of Engagement, and an enemy that was well-equipped with man-portable air defense (MANPAD) weaponry. Nevertheless, the task force built upon existing deep operations doctrine to develop a basic plan, modified it based on the combined experiences of the task force members and, through a process of trial and error, developed its own TTPs to plan, prepare, and execute this complex operation. Although the National Command Authority never authorized TF Hawk to conduct actual deep operations, its TTPs and lessons still offer important insights into organizing, planning, rehearsing, and executing future deep operations.

The information in this newsletter does not replicate that presently found in doctrinal publications. It is not intended to serve as doctrine or as a program to guide the conduct of operations and training. Rather, this newsletter is designed to highlight information and lessons that may be applicable to the evolving environment offered by contingency and deep operations.

CALL thanks those persons of U.S. Army Europe (USAREUR) and the Training and Doctrine Command (TRADOC) who shared their insights and experiences. The information contained in this publication is provided for your use and dissemination. If your unit has identified other relevant lessons or information, share them with the rest of the U.S. Army by contacting CALL at (913)-684-2255/3035, FAX (913)-684-9564, or DSN Prefix 552. The e-mail address for CALL is call@leavenworth.army.mil.

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TTP from Task Force Hawk
Deep Operations: Volume III

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The intent of CALL publications is to share knowledge, support discussion and impart lessons and information in an expeditious manner. This CALL publication is not a doctrinal product. The tactics, techniques and procedures (TTP) observed and reported in this publication are written by soldiers for soldiers. If you have, or your unit has, identified other relevant TTP for the U.S. Army, contact the Managing Editor, Dr. Lon R. Seglie, at Coml (913) 684-3035/2255 or DSN 552-3035/2255; FAX DSN 552-3035/2255; E-mail: <segliel@leavenworth.army.mil>. Articles must be submitted in either Word Perfect or Word format. Graphs, slides and clipart must be submitted separately from the document in either ppt, pcx or wpg format.

The Secretary of the Army has determined that the publication of this periodical is necessary in the transaction of the public business as required by law of the Department. Use of funds for printing this publication has been approved by Commander, U. S. Army Training and Doctrine Command, 1985, IAW AR 25-30.

Unless otherwise stated, whenever the masculine or feminine gender is used, both are intended.

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"It was the threat and the tremendous firepower and the ability of this task force (TF Hawk), in my opinion, that helped Slobodan Milosevic start the decision process for peace…that's what caused peace to have a chance." - SMA Robert E. Hall

INTRODUCTION

TF Hawk was a unique organization, designed to complement the North Atlantic Treaty Organization (NATO) deep operations capabilities with AH-64 Apache attack helicopters during Operation ALLIED FORCE. The task force was organized and deployed into Albania to conduct operations over Kosovo. TF Hawk's primary deep operations assets were its AH-64 Apache attack helicopters and its Multiple-Launch Rocket Systems (MLRSs). Ground maneuver units provided force protection, which was given the highest priority, commensurate with mission accomplishment. Additional units from within the U.S. Army Europe (USAREUR) corps provided combat support, and combat service support. TF Hawk elements included:

- **One Attack Helicopter Regiment (ATKHR) with 24 AH-64 Apache attack helicopters organized into two squadrons.**
- **One Corps Aviation Brigade (CAB) Task Force (TF) with 31 support aircraft including UH-60 Blackhawks, CH-47 Chinooks, and C-12 fixed-wing aircraft.**
- **One reinforced MLRS battalion with 27 launchers.**
- **One mechanized infantry brigade combat team with one mechanized infantry TF and one airborne infantry battalion.**
- **A Deep Operations Coordination Cell (DOCC) composed mainly of corps headquarters personnel.**
- **A support package headed by a Corps Support Group (CSG), which included organic transportation, quartermaster, ordnance (maintenance and ammunition), medical, finance, and personnel services units and attached engineer units.**
- **One task-organized signal battalion.**

Once deployed in its assembly area in the vicinity of Tirana, Albania, TF Hawk was to:

- **On order, conduct deep attacks to destroy enemy forces in the TF Hawk area of responsibility (AOR). The TF was to also support air interdiction through the targeting process.**
- **On order, conduct Suppression of Enemy Air Defense (SEAD).**
- **Be prepared to conduct offensive and/or defensive operations to defeat enemy attacks toward the TF assembly area or base camp.**
- **Take all possible steps to maximize force protection.**
- **As NATO and Serbia reached agreement on peace in Kosovo, be prepared to provide initial U.S. forces for the peacekeeping mission.**

TF Hawk succeeded in deploying and training for its mission to provide a deep operations punch in support of Operation ALLIED FORCE. But as with any other contingency operation, this one was not without its problems. Many observers question the length of time required to deploy TF Hawk into the theater of operations while others question the significant trainup time required to prepare the task force AH-64 crews for combat. The authors of this set of newsletters have written significant lessons and Tactics, Techniques, and Procedures (TTPs) arising from TF Hawk operations that will facilitate future similar operations.

Nevertheless, these lessons must be framed in the proper context. Although the media portrayed TF Hawk as slow in deploying into Albania, we must remember that it deployed to an austere theater through one single Aerial Port of Debarkation (APOD), Rinas Airport. This airfield in Tirana, the capital of Albania, also served as the Theater Staging Base (TSB)/Tactical Assembly Area (TAA). It not only had a limited Maximum on Ground (MOG), defined as how many parked aircraft can be worked simultaneously, but also required significant improvements before it was capable of supporting combat operations. Although confusion over Joint Inspection

(JI) standards and shortage of trained unit air movements personnel detracted from the efficiency of the deployment, it did not significantly delay the TF Hawk deployment.

Although never employed in combat, the task force AH-64 crews conducted numerous mission rehearsal exercises (MREs) to prepare for combat operations. Without the right perspective, we may judge these crews as not having been proficient enough in deep operations to carry them out successfully when initially deployed. Our old Cold War motto was "Fight as you train," which uses the model of "Train, Alert, Deploy, Fight." In this model, Army units were acquainted with their wartime scenarios and could train prior to alert and deployment to fight our Cold War enemies.

The new reality in our post-Cold War environment requires a "Train as you fight" mentality because of shrinking resources and the impossibility of training for the many diverse scenarios that U.S. Army units may face. The Army used two models to address this reality. The Army used the "Alert, Train, Deploy, Fight" model to employ units alerted for peacekeeping operations in Bosnia, and the "Alert, Deploy, Train, Fight" model to prepare TF Hawk for operations. Both models allowed U.S. Army units to train for contingency operations after alert, either while at homestation or after deployment into theater, because time was available. At the end of 16 full-up MREs, the TF Hawk Deputy Commanding General – Air (DCG-Air) noted that he would "put the TF Hawk pilots and commanders up against anyone." The Army must continue to seize every opportunity to train its forces to fight and win within the specific scenario of a contingency operation while minimizing friendly losses. Nevertheless, units must be well-trained enough in peacetime to fight and win anytime.

Using the outlined frame of reference, this three-volume set of newsletters provides TTPs and lessons from TF Hawk through a series of articles written by subject-matter experts (SMEs) from a CALL Combined Arms Assessment Team (CAAT). The first volume contains two articles that examine the subject areas of Command and Control and the Deep Operations Coordination Cell. The **Command and Control (C^2)** article studies the unique aspects of the task force headquarters design and relationships with higher headquarters. It also examines the organization and function of the various headquarters sections, and select C^2 processes related to directing and leading subordinate forces and acquiring and communicating information and maintaining statuses. The **Deep Operations Coordination Cell (DOCC)** article reviews the doctrinal organization and function of the DOCC and provides lessons and TTPs on TF Hawk DOCC organization, planning and targeting, preparation for combat, and battle tracking.

The second volume of this series studies several of the key combat and combat service aspects of the task force. AH-64 Apache attack helicopters and the MLRS, equipped with the Army Tactical Missile System (ATACMS), were TF Hawk's two deep strike assets. In the article, **Attack Helicopter in Deep Operations,** the author provides organization, planning, rehearsing, and execution lessons and TTPs. **MLRS Deep Fires** examines MLRS operations, MLRS tactical mission, and fire mission planning. Additionally, the article reviews various MLRS-specific support lessons and TTPs. Military Intelligence and Signal support were essential in this challenging tactical environment. The third article in this newsletter, **Military Intelligence Support Operations,** reviews the various phases of intelligence support for Mission Rehearsal Exercises (MREs) and NATO air strikes, and lessons learned in employing the Hunter UAV. The final article, **Signal Support**, studies operations, communications systems, and automation lessons learned and TTPs derived from communications support of the task force headquarters and units conducting deep attacks.

This volume examines combat service support, force protection and simulations support for TF Hawk. Again, this newsletter is a series or articles written by SMEs from the CAAT that observed operations in Albania. The **Combat Service Support (CSS)** article provides deployment, supply, maintenance (air and ground), and medical support lessons and TTPs. The article, **Support Aviation in Deep Operations,** supplements the CSS article and reviews UH-60 Blackhawk and CH-47 Chinook helicopter logistical support for TF Hawk. It also examines Downed Aircraft and Aircrew Recovery Team (DAART) and C^2 support for the deep attack. The **Force Protection** article examines operations security and safety. Finally, in **Battle Command Training Program (BCTP) and Army Simulations,** the author studies the effectiveness of BCTP in preparing TF Hawk to plan deep operations. He also looks at exercise design and simulations software lessons and possible changes in TTPs to improve the realism of future simulations training.

Although task force deep strike assets were ultimately not employed against targets in Kosovo, TF Hawk, nevertheless, provided many important lessons and TTPs, which should be considered for future deep and contingency operations. It encountered many problems, but met and overcame all major challenges.✪

COMBAT SERVICE SUPPORT (CSS)

by LTC Ronald Sutton, MAJ John Catino, MAJ Robert Glisson, and CW4 David Delahoy

Successful operational and tactical logistics provides the right combat service support (CSS) at the right time and place during combat operations. The focus of CSS is on manning and arming tactical units, fixing and fueling their equipment, moving soldiers, equipment, and supplies, and sustaining soldiers and their systems. A tactical commander must thoroughly integrate logistics support into his concept of operations. To successfully support the commander's plan, the supporting CSS units must be mobile and responsive.

Logistics planning at all levels involves several critical decisions concerning the interface of combat, combat support (CS), and CSS activities. Support of major operations requires organizing capabilities and resources into an overall logistical concept. Logistics planning and operations must be versatile and complement combat plans and operations, helping the supported unit to accomplish its mission.

To support deep operations, logistical units can carry their support resources (i.e., various classes of supply) throughout the mission, or they can receive resupplies over lines of communication. CSS planners must thoroughly analyze both methods for strengths and weaknesses. In either case, the CSS commander must update the supported unit commander on the assets available, their likely usage and sustainment prospects, and the likely consequences for the supported forces.

The Corps Support Command (COSCOM) tasked one of its Corps Support Groups (CSG) to support TF Hawk. Upon deployment notification, the CSG tailored its task organization based on the necessary personnel, equipment and sustainment assets to establish the Theater Staging Base (TSB) in Tirana Airfield. The CSG was a composite of various assigned and attached units. Organic assets included company or teams from its multifunctional Corps Support Battalions (CSBs), which provided ground, missile and aviation maintenance and supply support. Additionally, the CSG task organization included engineer, medical, and transportation units, field and personnel services, finance, and postal operations. The Corps Materiel Management Center (CMMC) and Logistics Support Elements (LSEs) from the Army Materiel Command (AMC) and the Defense Logistics Agency (DLA) were also to be collocated with the CSG.

Force Deployment

Deployment is the component of force projection that focuses on the relocation of forces and materiel to the desired area of operation. During this operation, TF Hawk units went through the Reception, Staging, Onward Movement, and Integration (RSO&I) process, which consists of four interrelated processes in the theater of operations required to transform arriving personnel and materiel into forces capable of meeting operational requirements. The functions of RSO&I are applicable across the entire spectrum of military operations and at all levels of war: strategic, operational, and tactical.

Reception: Unloading personnel and equipment from strategic or operational transport, marshalling local area transport (if required), and providing life support to the deploying personnel. Reception is often the interface between the strategic and the operational levels.

Staging: Assembling, holding, and organizing arriving personnel and equipment into units and forces, incrementally building combat power and preparing units for onward movement; and providing life support for the personnel until the unit becomes self-sustaining.

Onward Movement: Moving units and accompanying materiel from reception facilities and/or marshalling or staging areas to tactical assembly areas (TAAs) or other theater destinations; moving arriving non-unit personnel to gaining commands and moving arriving sustainment materiel from reception facilities to distribution sites. Staging and onward movement are normally within the operational level.

Integration: Synchronizing the transfer of authority over units and forces to a designated component or functional commander for employment in the theater of operations. Integration represents the interface between the operational and tactical levels of war.

Because of insufficient ground lines of communications (LOCs) within Albania, TF Hawk deployed in country and was logistically sustained almost exclusively by air. Rinas Airfield in Tirana was the Task Force's sole Aerial Port of Debarkation (APOD), the only airfield in Albania capable of handling the massive U.S. Air Force cargo aircraft that brought in TF Hawk's personnel and equipment. This created difficulties in both reception and staging.

Since TF Hawk staged and set up for tactical operations at Rinas Airfield, the airport also served as the Theater Staging Base (TSB) and Tactical Assembly Area (TAA). Because the TSB and TAA were collocated, no significant challenges existed in the onward movement and integration portions of RSO&I. However, this article discusses the difficulties in shared use of main supply routes (MSRs) between TF Hawk and NATO coalition forces in support of humanitarian relief operations (HRO). We consider the challenges faced here to be part of the onward movement phase.

Reception

The primary airlift challenge that TF Hawk faced was the lack of airports, not the lack of available aircraft. Once on the ground, the APOD personnel faced challenges in the area of reception, which included the maximum capacity of aircraft that could be received, intransit visibility (ITV), communications, and cargo processing.

Maximum On Ground (MOG): A constraining factor for APOD throughput is the working MOG defined as how many parked aircraft can be worked simultaneously. A limited MOG restricts the inbound flow of aircraft, which creates a backlog in the deployment process pipeline. The airfield was split between the Humanitarian "Shining Hope" operation and the TF Hawk operation. Both operations competed for aircraft loading and unloading as well as other airfield resources.

The TF Hawk APOD MOG was three aircraft consisting of two C17s for deploying forces and one C130 for sustainment. The MOG for SHINING HOPE was four aircraft. To hasten off-load in a combat zone, the USAF conducted Engine Run Offloads (EROs) with the combat-loaded Army equipment which accelerated the aircraft off-load process.

Intransit Visibility (ITV): The APOD served as the primary port of entry node for all deploying TF Hawk personnel and early entry forces in theater. The buildup of combat power occurred incrementally over several weeks. Both the Air Force and Army experienced problems maintaining visibility over these in-bound assets (soldiers, equipment, and supplies). The automated systems commonly used by the Air Force, Global Transportation Network ((GTN), a Joint system), Remote Consolidated Aerial Port System ((RCAPS), an Air Force system), and the Global Decision Support System ((GDSS), an Air Force system) were unavailable. They were unavailable due to either fielding changes or lack of internet access. Therefore, the Army was not able to receive ITV information from the Air Force. Since the Army lacked internet access also, it could not obtain ITV from its own GTN system.

APOD operations consisted of two parts. An Air Force Air Mobility Squadron (AMS) and Tanker-Airlift Control Element (TALCE) conducted terminal operations while an Army Arrival/Departure Airfield Control Group (A/DACG) performed the air terminal support functions. Doctrinally, some TALCE ITV functions include:

- **Advise the A/DACG on the airflow and expected arrival of aircraft.**
- **Inform the A/DACG on operational changes.**
- **Ensure communications between the TALCE and A/DACG.**

Because the Air Force initially lacked the ITV systems, the Air Force conducted workarounds, which consisted of several traditional methods. The TALCE received mission schedules one day before execution and provided it to the A/DACG as a warning order. On the day of execution, both the TALCE and A/DACG telephonically contacted their counterparts at home-station for updates. Even with these workarounds, the only reliable ITV occurred after the aircraft landed. Providing the A/DACG ample leadtime can enhance APOD throughput because it allows the A/DACG to coordinate limited transportation assets in advance.

Communications: To perform its mission efficiently, **t**he A/DACG required access to a Local Area Network (LAN) and telephone. The A/DACG uses the GTN, which requires connection to a LAN, to receive classified and unclassified ITV. Access to the LAN allows deploying units to receive updated information such as expected arrival times of equipment and personnel. Telephone lines in the A/DACG operations cell would have helped unit liaisons resolve issues on site.

Cargo Processing: To handle the large quantities of arriving material, an A/DACG with a robust port opening package was required early in the deployment. To prevent a backlog of off-loaded materiel at the APOC and maximize the efficiency of the port clearance operation, it was essential that the A/DACG port opening package arrive in its entirety.

Doctrinally, the reception process involves unloading personnel and equipment from strategic or operational transport. The Army and Air Force share the responsibilities for operating APODs. The Air Force is responsible for the airfield including air terminal control, loading, unloading and servicing of aircraft. The Army is responsible

for clearing personnel and cargo. During the deployment, the A/DACG's port opening package included MHE and cargo transports, which were to be used in tandem to clear materiel from the flight line to the unit area. When the MACOM changed the priority of airflow, it split the port opening package. This split disrupted unit integrity and created a two-day gap between the arrival of the MHE and the cargo transports. The A/DACG managed to compensate for this shortfall by borrowing equipment from the Air Force and other deployed units.

Units can do several things to ease the reception process at the APOD. First, units can designate liaisons at the APOD to receive inbound personnel and equipment. Many units arrived unaware of where their staging areas were located or to whom they should report because of the frequent changes in task organization. In addition, a cluster of personnel around the off-load area adds to the confusion of an already complex operation. As an interim fix, DACG personnel provided temporary shelter (if available) to the arriving unit until the problem was resolved. There was no established Passenger Holding Area (PHA) for inbound personnel.

Secondly, units should mark their pallets in a manner that allows easy identification if standard markers are absent. Some pallets arrived unmarked and were undeliverable until a unit representative found them. As a minimum, each pallet should have a pallet board on adjacent sides containing the following information and documents:

- **Transportation Control Number (TCN), used for tracking by Army and Air Force ITV systems.**
- **DD Form 1387, Military Shipping Label (formerly known as the LOGMARS label), used for ITV.**
- **AF Form 2279 (Pallet ID) sheet which contains basic information such as unit name and UIC.**
- **Weatherproof shipping envelope containing the Packing List and other documents such as HAZMAT.**

Staging

During this operation, infrastructure and space challenged TF Hawk in the areas of cargo processing and unit staging. The lack of a hard surface road network within the TSB hindered delivery of unit equipment to the deployed units. Limited space for cargo processing made materiel handling difficult and slowed the loading and unloading process. In fact, inbound, outbound and frustrated cargo were initially staged in a confined area (100 square meters). Additionally, muddy terrain made it difficult to access some units. These units were assigned staging locations that could not geographically support their operation because of space constraints, muddy terrain, and safety considerations. The infrastructure and space constraints gradually improved when engineer assets began arriving and the ground dried out.

Onward movement

Both TF Hawk and the NATO coalition force in support of HRO in Albania used the same MSR to support their missions. The designated MSR was the only suitable route available to access their forward operating areas. For operational security (OPSEC) reasons, TF Hawk wanted to withhold movements' information from the NATO coalition force, which controls the MSR. The NATO coalition force used the MSR for both logistics resupply and refugee retrograde operations. The TF Hawk movements conflicted with both refugee retrogrades and humanitarian logistic resupply operations.

In an attempt to resolve the challenge, TF Hawk provided a liaison to the NATO coalition forces' Joint Operations Center (JOC) and the Joint Movement Control Center (JMCC). However, the representative did not have authorization to relay detailed tactical movements. The TF Hawk liaison's role was to relay humanitarian movements back to TF Hawk, but not vice-versa. Although a step in the right direction, this one-sided exchange of

movements' information did not fully resolve the conflicting priorities on the only MSR essential to the success of both missions.

FM 100-17-3, ***Reception, Staging, Onward movement, and Integration,*** states that, "The theater movement control plan is key to a sound movement control system. The plan integrates the transportation capabilities of the component commands, and produces a movement control system with centralized planning and decentralized execution." Additionally, Joint Publication 4-0 adds that, "Inadequate control of movement, whether into or within the theater, results in waste, reduced logistic efficiency and consequently, a loss of potential combat power."

Lessons Learned:

☞ The TALCE and A/DACG require NIPRNET (Nonsecure Internet Protocol Router Network) and SIPRNET (Secure Internet Protocol Router Network) access for their ITV systems.

☞ Collocate an A/DACG liaison with decisionmaking authority with the TALCE's ITV section to enhance information dissemination and resolve issues.

☞ If not present in theater, include an A/DACG capability in the lead elements of the transported force.

☞ Splitting unit integrity may degrade performance by separating mission-essential equipment needed to perform the mission efficiently.

☞ Strategic planners should sequence a robust A/DACG port-opening package early in the Time-Phased Force Deployment Data (TPFDD) to ensure that personnel and equipment arriving at the APOD continue moving through the port to the staging area.

☞ A thorough APOD site reconnaissance with task force unit liaisons would have enhanced throughput efficiency because the liaisons would have provided direct input into the planning process.

☞ Consider the effects of weather on the terrain selected for staging operations.

☞ Sequence Engineer assets early in the TPFDD flow when operating in austere environments to improve the existing infrastructure for cargo processing and unit staging.

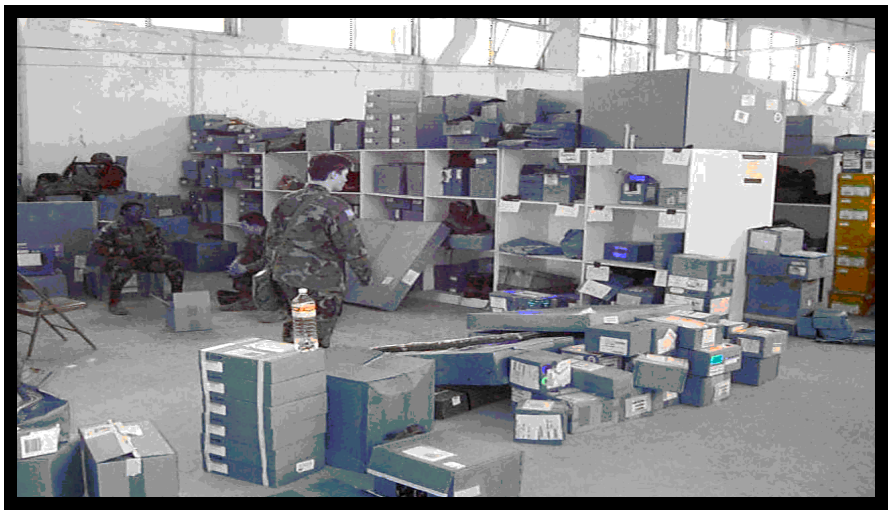
☞ Refer to Chapter 5, Onward movement, and Appendix I, Movement Control Operations, in FM 100-17-3 for improving Onward movement operations when building combat power.

☞ De-conflict movement along the MSR with the controlling authority, the JMCC in this operation, since the NATO coalition force had the authority to control all coalition movements along the MSR.

☞ Allow the JMCC's tactical liaison officer to be an integral part of the movements planning process with full authority to influence theater movements.

Supply Operations

The CSG Supply Support Activity (SSA) was TF Hawk's "hub" for all managed resupply items, less ammunition, fuel, and medical. The CSG encountered several challenges in establishing a SSA to manage TF supplies and sustainment parts. It deployed 20 soldiers from various units within the CSG. However, the SSA still needed critical non-commissioned officers (NCOs) for stock control, issue and turn-in sections, and additional supply specialist personnel to perform receipt processing, storage, issue, and pallet-handling functions. These personnel were needed to provide quality control and help reduce the large huge backlog of air cargo pallets arriving in theater. To off-set this personnel shortfall, the CSG received augmentees from non-CSG units and contract personnel.



CSG soldier in SSA processing receipts and moving them to a storage location.

During initial deployment, units had to coordinate with the SSA to ensure it had a proper Department of Defense Activity Address Code (DODAAC) or derivative unit identifier code (UIC). Supply doctrine requires that deploying units have a DODAAC or derivative UIC to request supplies and equipment. This caused a slight delay in some units' ability to requisition supplies. Assigning the SSA a DODAAC early during deployment is important because the DODAACs are reported to other strategic logistics organizations such as DLA, AMC, General Services Administration (GSA), Aerial Port of Debarkation (APOD) and Seaport Port of Debarkation (SPOD). These organizations track requisitions, issue repair parts/supplies, and monitor the logistical pipeline. Thus, the SSA, CMMC, Corps G4, and Central Region (CR) resolved the matter expeditiously without adverse impact on the mission.

Because of the compressed deployment timelines and changes to the original TF requirements and force structure, the SSA built its authorized stockage list (ASL) based on the equipment densities. On arrival in theater, it made adjustments to off-set the additional units deployed. The previously built robust "push packages" of repair parts for Maintenance Support Teams (MSTs), developed for another contingency, became the baseline to help roundout the ASL. The SSA was eventually established at 1,700 lines. Additionally, prior to deployment, units were instructed to draw ASL as Prescribed Load List (PLL) items from their supported home-station SSA and store

them in ISU90 containers. After deployment into theater, the SSA received and manually verified the ISU90 contents and inputted the information into the Standard Army Retail Supply System (SARSS).

The SSA used SARSS as its automated supply mechanism to requisition, receive, store, inventory, and process the various classes of supply. Because of the lack of data communication linkages with home station during the initial deployment phase, SARSS was unable to process supply data the first few days. It wasn't until the AMC-LSE arrived and provided the SSA with a communication means using its International Maritime Satellite (INMARSAT) communication "fly-away" package that it was able to process requisitions. The SSA later migrated to a Non-secure Internet Protocol Network (NIPRNET) to conduct its supply mission. Establishing SARSS quickly and preparing storage sites were extremely important because 20 to 25 cargo pallets were arriving daily via ALOC from CONUS depots and theater distribution center (TDC).

Receipt processing section in SSA.

The high volume of cargo pallets that needed processing and high customer support requirements required the SSA to established two work shifts to reduce the backlog while still trying to organize its storage locations. Swampland was reclaimed and graveled, and the main road network was widened for two-way traffic that provided a pallet yard area and facilitated through traffic. The CSG SSA achieved mission success for TF Hawk through initiatives, outstanding leadership and the dedicated efforts of its soldiers. Although the SSA had key personnel shortages and limited indoor and outdoor storage locations, it managed to continue providing outstanding customer support for the deployed forces.

Lessons Learned:

☞ **Assigning units a deployment DODAAC or derivative UIC prior to deployment greatly reduces supply problems in theater.**

☞ **The Army should review the personnel and equipment requirements for Split-Based Operations (SBO).** Units must deploy with sufficient personnel and mission-essential support packages such as SARSS to sustain combat readiness.

Arming-Class V Operations: The CSG was responsible for receiving, storing, issuing, and providing security for ammunition stocks. TF Hawk units deployed with their ammunition basic load via ALOC from home station while other ammunition stocks were shipped from CR. One ammunition platoon had the mission to receive, store, and issue ammunition. The transportation company transported the ammunition to the ammunition storage point (ASP) holding area where it was inventoried and entered into the accountable records system or the Standard Army Ammunition System-Modern (SAAS-MOD). Later, the ammunition was taken to a designated storage location and separated by field storage categories. Most of the ammunition was placed in either a roadside storage site or existing covered locations. For safety purposes, contractors erected Hesco-Bastion barriers alongside all the roadside storage locations to reduce the dangers of explosion and cleared large areas of vegetation to create fire breaks within the storage sites.

Class V Storage -- Organizing unit ammunition basic loads.

The ammunition platoon established the ASP to store six days of supply (DOS), the command stockage objective (SO) for mission critical munitions. However, after the ASP was established, the objective was set to increase the SO to 15 DOS once the proposed new ASP site was built. Although this SO was never reached, the amount of ammunition requiring storage still exceeded the initial command SO of six DOS for some Department of Defense Identification Codes (DODICs).

Ammunition storage area protected using Hesco-Bastion barriers filled with gravel.

To handle ammunition movement, the platoon used one 6,000-lb commercial forklift, two 6000-lb rough-terrain variable-reach forklifts (RTFLs), and one 10,000-lb forklift. The 6,000-lb commercial forklift was not well suited for the rough terrain in the ASP, although it was effective for hard-surface operations. The two authorized 6,000-lb RTFLs were suitable for handling and moving most types of ammunition over rough terrain in the ASP, but lacked the lifting capability to handle larger munitions, such as the Multiple-Launch Rocket System (MLRS) pods. For that, the ammunition platoon needed to borrow a 10K forklift from an adjacent unit. During predeployment, the unit identified the 10K forklift as needed MHE. However, because of other priorities, the forklift was delayed in the equipment flow and never arrived.

Lessons Learned:

☞ **MHE assets are critical and must receive priority in deploying forces equipment planning.** Ammunition platoons definitely need its MHE to move and store heavy ammunition stocks such as the MLRS pods.

☞ **Hesco-Bastions barriers (force protection asset) reduced the safety risk for stocks given the limited space.**

Fueling - Class III Operations: Providing clear priorities for fueling, accurately estimating fuel consumption, and economizing assets whenever possible to ensuring adequate support of operations. Since this was an Aviation deep attack mission, a careful planning of fuel requirements and establishment of future Refuel On the Move (ROM)

sites was necessary. To support TF Hawk, tankers and fuel bladders were used. Due to limited terrain, fuel farms were located too close to troop-living areas and vehicles. However, as engineers and contractors cleared other terrain areas, priority was placed on relocating those farms to safer areas.

Ground and Aviation Maintenance Operations

Ground Maintenance: The CSG deployed to the AO with a task organization of four different ground maintenance companies to perform base camp support. Upon arrival in theater, one company was designated as the lead base camp direct support maintenance company. Organic and attached CSG units performed their own preventive maintenance checks and services (PMCS). The lead base support maintenance company encountered several challenges to providing responsive maintenance support: limited availability of hard surface areas for maintenance diagnostics; minimal shop, bench and PLL stocks; few technical manuals; insufficient numbers of MOS competencies; and an insufficient quantity of test equipment. Also, several support units failed to deploy with their Unit Level Logistics System (ULLS) boxes to maintain their maintenance systems and request repair parts. This required loading several units onto one ULLS box, thus creating a problem when trying to consolidate AMSS data for TF Hawk.

Maintenance personnel repairing hose using the Histru Repair Hose System on the Maintenance Contact Truck.

Most of these challenges arose from changes in TF Hawk's deployment timelines, task organization changes, and force structure cap. However, the lead base maintenance company organized personnel and equipment assets from assigned and attached CSG units. The unit cleared two old buildings for vehicle inspection, diagnostics, and repairs; consolidated repair parts stockage from other units; established maintenance control procedures; coordinated replenishment parts with the SSA; and maintained liaison with home station. The base camp maintenance support company repaired everything from electronic components, generators, heavy engineer equipment, missile system components, forklifts, hoses, and all types of wheeled and tracked vehicles.

Lessons Learned:

☞ **Units should deploy with sufficient TMs, PLL, battery chargers, system-specific special tools and other organic assets, such as their ULLS automation capability on deployments to the theater (this includes deploying trained ULLS operators).**

☞ **Ensure and prepare a "robust" support package with the necessary personnel and equipment to support deploying forces and conduct of SBO.**

Aviation Maintenance

Aviation maintenance units faced many challenges in support of TF Hawk. The most critical elements in providing aviation maintenance support were the demands of Split-Based Operations. The blending of aviation maintenance units unaccustomed to working together was another challenge. Nevertheless, aviation maintenance personnel overcame these challenges and provided superior maintenance and logistical support for TF Hawk aviation assets, ensuring timely mission success.

The number of attack helicopters in TF Hawk was limited to 24 AH-64s. To facilitate continuous operations, the TF Attack Helicopter Regiment deployed almost all of its personnel from its headquarters and two squadrons. However, to meet the cap placed on deployed aircraft, each squadron deployed only 12 AH-64s, half the authorized strength. The regiment conducted continuous operations by rotating each squadron through 24-hour cycles. To increase aircraft availability for continuous operations, each squadron deployed all 24 crew chiefs to maintain the 12 deployed aircraft. By placing two crew chiefs on each AH-64, the squadrons increased aircraft readiness and their ability to conduct continuous operations.

AH-64 preparing for test flight after rotor head change and extensive AVIM maintenance.

The anticipated deep operations mission also affected the organization of the TF Hawk AVIM unit. Supporting the corps AVIM needs required blending the personnel of two maintenance companies and their equipment and leadership to maintain the TF Apache, Blackhawk, and Chinook airframes. This required creative decisionmaking to determine methods for sharing special tools and personnel needed to support the home-station mission as well as the deployed forces without deploying contractors.

Lessons Learned:

- ☞ **TF Hawk was more capable and retained greater flexibility by deploying two squadrons of AH-64A maintenance assets to support one squadron of aircraft.**
- ☞ **Despite the requirement for 24 aircraft, equivalent to one squadron, the decision to deploy the assets of two squadron provided the Fully Mission Capable (FMC) airframes required to maintain the high operational tempo.**
- ☞ **For rapid deployment and split operations in future deployments, restructure the unit to meet these requirements, especially in the one-deep and one-of-a-kind special tools.**
- ☞ **Corps AVIM units were not structured to conduct split-based operations because of equipment and personnel densities.**

Combat Health Support

Combat Health Support (CHS) for TF Hawk included several innovations. The Contingency Medical Force (CMF) was the first *pre-designed* comprehensive Level III healthcare facility designed to be both rapidly deployable and able to conduct continuous medical and surgical operations in an austere, ambiguous environment. A Battalion Aid Station was created for the Special Troops Battalion to provide area medical support for the Deep Operations Coordination Center. A Forward Support Medical Company from a division deployed to provide comprehensive Levels I and II combat health support for the task force in lieu of a doctrinal Area Support Medical Company. Various medical teams representing medical logistics, preventive medicine, veterinary medicine, combat stress control, and dental contributed greatly to the overall mission in spite of enduring shortages in both equipment and personnel. An Aeromedical Evacuation Liaison Team from the Air Force, as well as a Casualty Assistance Team from the theater personnel command also ably augmented the CMF. Ground and air evacuation units from the theater supported the entire task force.

A particularly valuable innovation involved the attachment of the Air Ambulance Company to the Aviation Brigade, instead of the medical command. This enabled the company commander to play an active role in the development of evacuation planning instead of working with the aviation assets externally. The commander sat in the meetings as a green-tab commander and had complete access to all information necessary for him to accomplish his mission. Access to aviation supply and maintenance was easier to attain, as well as integration into the Army Airspace Command and Control (A^2C^2) plan. By having direct input with the aviation brigade commander, the medical company commander was able to demonstrate the company's capabilities. This also enabled the medical company commander to be included with the Downed Aircraft and Aircrew Recovery Team (DAART). This team consisted of a security team, a command and control aircraft, and a MEDEVAC aircraft. The MEDEVAC aircraft was an UH-60B equipped with a high-performance hoist, enabling the aircrew to extract casualties from rugged Balkan terrain.

To ensure that prompt release authority is available to them, medical commanders traditionally prefer to retain aeromedical evacuation under their direct command and control. But the many benefits derived by placing the MEDEVAC units under aviation control in the field makes this a viable option for future operations.

Strategic Logistics Support: The AMC and DLA were invaluable assets to the CSG and TF Hawk. Both provided logistics support elements (LSEs) that assisted the corps and CSG staff elements in strategic logistics. The LSEs collocated with the CSG and were well integrated with rest of the CSG staff. The AMC-LSE was an invaluable asset to the CSG maintenance and supply operation. It augmented the CSG in expediting repair parts and provided technical assistance and training to TF Hawk.

AMC Logistics Assistance Representatives (LARs) deployed with sufficient teams to integrate logistics planning and expedite supply and maintenance support, both ground and air, to TF Hawk. They provided technical advice, supply and maintenance soldier training, communication linkages, and maintenance diagnostics troubleshooting. They expedited receipt of Army managed repair parts, provided TIER III maintenance support for office automation equipment, and supported maintenance, supply services, and critical logistics communications. The AMC-LSE deployed with a portable communications package, the INMARSAT that provided CSG logisticians an independent capability to communicate with home station until command nets were established. This communication package was critical in providing a wide area network for the SSA automated SARSS back to home station.

The LSE also provided both voice and data communication capabilities. Additionally, the LSE provided the only commercial (civilian) telephone line available, which was critical in communicating with the Military Traffic Management Command (MTMC) since they had only commercial communication and other supply activities in the Central Region that interfaced with DLA.

DLA provides several types of logistics support to the armed forces. It is responsible for eliminating logistical redundancy and standardizing common supplies. The team facilitated integrating materiel management support of DLA common commodities such as subsistence, clothing and other general supplies package/bulk petroleum, and medical materiel. It collocated with the CSG primary staff, CMMC, and the AMC-LSE.

Lessons Learned:

☞ **Deploying an AMC-LSE early in the operation is a combat multiplier.**

☞ **AMC-E LSE "fly away" communications (INMARSAT) helped the SSA conduct Split-Based Operations (SBOs) for its SAARS communication link.**

☞ **AMC-E LSA's ability to tap into technical expertise quickly adverted long lead times and decreased non-mission capable deadlines.**

Contractor Support: During TF Hawk, the Army used civilian contractor augmentees to support its deployed forces. The Logistics Civil Augmentation Program (LOGCAP) is an Army program governed by **AR 700-137, *LOGCAP.*** It incorporates civilian contractors to augment Army forces and perform selected engineering and logistical services in wartime or other contingency operations. The contractor provided field services such as laundry, semi-permanent latrine and shower facilities, potable water, transportation, maintenance, and supply support. They also assumed dining facility operations and conducted facilities upgrades.✪

References:

FM 100-10, *Combat Service Support*
FM 63-2-2, *Combat Service Support Operations*
FM 54-30, *Corps Support Groups*
FM 9-6, *Munitions Support in the Theater of Operations*
AR 700-137, *LOGCAP*

Support Aviation in Deep Operations

by CW5 Rodney Sangsland and CW4 Michael Trotter

FM 1-100, *Doctrinal Principles for Army Aviation in Combat Operations,* defines aviation Combat Support (CS) as "the operational support and sustainment to forces in combat by aviation units" and aviation Combat Service Support (CSS) as "the assistance provided by aviation forces to sustain combat forces." These assets primarily emplace and reposition logistical support such as equipment, materiel, and supplies. These logistical operations can include the movement of personnel. Flexibility and maneuverability are the cornerstones of Army Aviation doctrine. The commander's ability to concentrate superior forces at enemy weaknesses and to maneuver reinforcements to advantageous positions are key ingredients to fighting and winning.

Deep operations comprised activities directed against opposing forces not in contact. Deep operations shape the battlefield to obtain advantages in subsequent engagements. Successful deep operations create the conditions for future victory. The primary mission of the utility and cargo helicopters was to support the TF Hawk commander's CSS plans. The Corps Aviation Brigade (CAB) accomplished this by providing aerial movement of fire support systems, combat troops, equipment, and supplies whenever and wherever they were needed. Because helicopters are unique and limited assets, any mission assigned to them must be sufficiently important to warrant the potential loss of trained crews and equipment. Commanders at all levels must know the capabilities and methods of employment of support helicopters.

The CAB was alerted to rapidly deploy to support the NATO-phased campaign in the Former Republic of Yugoslavia (FRY). The CAB formed a Task Force Aviation Brigade (TFAB) which was one of the two aviation tasks forces within TF Hawk. The TFAB was tasked to support the Task Force Attack Helicopter Regiment (TF AHR) for Deep Operations into the FRY province of Kosovo.

The TFAB organized to provide CS with Command and Control (C^2), Downed Aircrew Recovery Team (DART) and Downed Aircrew and Aircraft Recovery Team (DAART) and CSS with Medical Evacuation (MEDEVAC), Heavy Lift, and "fat Cow" refueling. Special aircraft equipment and aircrew training was required to properly support the Deep Operations. TFAB support aviation assets provided the commander greater mobility by transporting priority fire support systems, personnel, and supplies rapidly throughout deep areas of operation. Understanding the versatility of support helicopter greatly increased the TF commander's battlefield options.

UH-60 DART/DAART/C^2

The TFAB provided DART support beyond the Forward Line of Troops (FLOT) during the Deep Attack using organic utility helicopters from its UH-60 battalion and attached MEDEVAC UH-60s. DART mission requirements included aircrew recovery, site security team insertion and extraction, MEDEVAC and C^2 support. Due in part to the mountainous terrain, the unit required special aircraft equipment and modifications to adequately support the tasking. Special equipment requirements included internal extended range fuel systems for extended on-station time, Fast Rope Insertion and Extraction System (FRIES) hardware for security team

insertion, Satellite Communications (SATCOM) for over-the-horizon communications and provisions for Long Range Surveillance (LRS) team transport. The required special equipment was not standard to the UH-60 battalion. One of the battalion's UH-60 lift companies had recently completed a lengthy deployment that required UH-60Ls to be specially equipped with SATCOM and one 172-gallon Robertson internal extended range fuel tank each. Therefore, five of the battalion's Blackhawks were already so equipped. Additionally, two of those five were modified with FRIES.

The TFAB task organized the DART into two elements: the Immediate DART, which directly supported the Deep Attack and the Deliberate Downed Aircraft and Aircrew Recovery Team (DAART), which remained on-call at the Task Force Assembly Area (TFAA). The Immediate DART or "Three Pack" consisted of three Blackhawks: one each for security team insertion and extraction, C^2, and MEDEVAC. The security team UH-60L was equipped with SATCOM, one 172-gallon Robertson internal extended range fuel tank, FRIES hardware and Ballistic Armored Subsystem (BASS) blanket. To maximize internal load capacity for this special equipment plus an eight-man LRS team, the unit removed the troop seats from the cargo compartment. The C^2 UH-60A was equipped with a 15B Command Console with the ARC 212 SINCGARS, Have Quick and SATCOM, and external Extended Range Fuel System (ERFS) while the MEDEVAC UH-60A carried a rescue hoist and ERFS.

The Deliberate DAART consisted of two UH-60 Blackhawks, one security team and one MEDEVAC similarly equipped to those listed above, one CH-47 for aircraft recovery and two AH-64 Apaches for aerial security. The Deliberate DAART remained on-call at the TFAA to augment the Immediate DART with an additional eight-man LRS team and MEDEVAC, heavy lift and aerial security support when needed. When the Deliberate DAART was activated, the Immediate DART C^2 would remain on station to coordinate the entire recovery operation.

The DART provided continuous Deep Attack mission support through mountainous terrain during deployment. During that time, the DART provided C^2 communications, combat MEDEVAC support, remained on-station through the duration of each mission and conducted two actual downed aircraft and aircrew recoveries. The SATCOM provided better communications than line-of-sight (LOS) radios; however, it was intermittent when high terrain features blocked satellite reception. Extended range fuel tanks were essential to provide continuous on-station DART/DAART support during the entire attack mission. The FRIES was essential for security team insertion in the mountainous areas that prohibited the helicopter to land to the ground. Because the external ERFS tanks inhibit FRIES operations, the security team UH-60 carried an internal Robertson extended range fuel tank. Additionally, the unit removed the troop seats from the cargo compartment to safely conduct FRIES. The BASS blanket, which covers the floor of the cargo compartment, protected the security team from small arms fire. The MEDEVAC hoist was available for personnel extraction. The battalion acquired the Special Patrol Infiltration Exfiltration System (SPIES) while deployed in the Area of Responsibility (AOR) but didn't have time to install or train on the system. The SPIES provides a rapid, non-ambulatory downed aircrew and security team extraction capability. All of the above-mentioned equipment except the rescue hoist and ERFS were non-standard mission equipment/systems.

Lessons Learned:

- **The DART support mission required special equipment and aircraft modifications for mountainous terrain.**
- **Extended range fuel systems were essential for Deep Operations support.**
- **Internal extended range fuel tanks were preferred over external tanks on FRIES-equipped Blackhawks.**
- **Airborne SATCOM on tactical helicopters can be intermittent during flight in mountainous terrain.**
- **A seats-out MACOM waiver for FRIES operations was essential for DART support.**

UH-60 ERFS

The TFAB was tasked to conduct Deep Attack operations support which required extended range fuel capabilities. The Deep Attack operation consisted of two attack elements: the main attack and the feint. The mission of the main attack element was to conduct the Deep Attack across the FLOT in a specified Engagement Area (EA) while the mission of the second element was to conduct feint operations behind the FLOT. The UH-60 Blackhawks of the TFAB provided four support elements: an Immediate DART, a Deliberate DAART, a squadron C^2 and a Chase aircraft.

The three Blackhawks of the Immediate DART were equipped with the following extended range fuel systems. The security team UH-60L was equipped with one 172-gallon Robertson internal extended range fuel tank. The C^2 UH-60A and the MEDEVAC UH-60A were equipped with external ERFS. The Deliberate DART Blackhawks consisting of one security team and one MEDEVAC were equipped with extended range fuel systems similar to those listed above. The squadron C^2 UH-60A was equipped with external ERFS, and the Chase UH-60L was equipped with an internal Robertson tank.

The Immediate DART was tasked to provide behind-the-FLOT aircrew recovery for the two attack elements during the ingress and egress phases. It launched from the Task Force Assembly Area (TFAA) before the attack elements and remained on station at a Restricted Operations Zone (ROZ) during the entire mission. The Immediate DART C^2 had a full fuel load in the ERFS, giving it a five-hour station time.

The Deliberate DART remained on-call at the TFAA and, when activated, would augment the Immediate DART with an additional eight-man LRS team and MEDEVAC support. The Immediate DART C^2 had sufficient station time to coordinate all four aircraft during the aircrew recovery.

The squadron C^2 launched from the TFAA with the main attack element and was tasked to follow it across the FLOT to provide C^2 in the EA. The squadron C^2 Blackhawk carried 100 gallons of fuel in each external ERFS tank,

which would be expended prior to crossing the FLOT. The additional fuel gave the squadron C^2 a three and one-half hour station time.

The Chase aircraft launched with, and followed the second attack element through, the feint mission. It carried 172 gallons of fuel in the internal Robertson tank, giving it an on-station time of three hours. Both MEDEVAC aircraft carried additional fuel in their ERFS.

TF Hawk did not conduct Deep Operations before a peacekeeping plan was implemented in Kosovo; however, the TF conducted multiple Mission Rehearsal Exercises (MRE) which mirrored combat requirements. The extended range fuel capability for each Blackhawk was critical for the successful accomplishment of the mission.

To meet extended on-station time requirements of the Blackhawks, additional fuel on board was mission essential. Although the 172-gallon Robertson internal extended fuel tanks on board the Immediate DART security team aircraft and the Chase aircraft worked fine, the TF noted two deficiencies with the tanks. They have no fuel quantity indicator and they take up limited internal load space. The external ERFS installed on the other Blackhawks provided necessary extended fuel range but had the deficiencies as indicated below.

Lessons Learned:

☞ The UH-60 Blackhawk with extended range fuel capability was essential for CS and CSS of the Deep Attack operation.

☞ The 172-gallon Robertson internal extended fuel system provided safe extended on-station mission support time; however, the tank further reduced the Blackhawk's limited internal load-carrying capacity.

☞ The external ERFS provided ample extended on-station time; however, the system had the following deficiencies:

- **➜ The tanks were not crashworthy and ballistically tolerant.**
- **➜ The tanks contained pressurized fuel.**
- **➜ The tanks limited lateral center-of-gravity balance.**
- **➜ The tanks severely restricted airspace surveillance and the window gunner's field of fire.**
- **➜ The tanks degraded aircraft performance and maneuverability.**
- **➜ The tanks hampered passenger ingress and egress.**
- **➜ The tanks presented a high risk of post-crash fire.**
- **➜ The tanks could not be hot-refueled.**
- **➜ The tanks could not be used with FRIES.**

CH-47 Fat Cow Refuel Operations

CH-47s primarily supported the deep attack with forward area refueling for TF helicopters. The ability to configure the CH-47 with the refueling equipment provided the TF Commander increased mission flexibility by providing a highly mobile forward area fuel source. This method of delivering fuel to attack aviation assets via 600-gallon metal ERFS tanks proved invaluable. As installed, this modular, interconnected system can deliver up to 1,160 gallons of fuel to mission aircraft.

Two CH-47s were configured with the equipment to conduct Fat Cow operations. Each system was comprised of two non-crashworthy, non-ballistic proof metal internal tanks, associated plumbing, a 225-gallon-per-minute (GPM) diesel engine fuel pump, a filter separator, and lightweight discharge hoses. This configuration allowed each CH-47 to set up a dual Forward Area Refueling Point (FARP) within 10 minutes of arrival at the refueling location. The system had great versatility allowing the CH-47 not only the ability to refuel other aircraft, but also if the situation dictated, to refuel itself. The system also was very flexible allowing aircrews the ability to install one to four 600-gallon fuel tanks inside the helicopter.

Factors influencing the mission configuration included the number of expected customers, anticipated fuel requirements per customer, and the limitations of mission, enemy, terrain, troops and time available (METT-T). Additionally, aircraft performance data had to be carefully reviewed. With the four-tank configuration, the heavy lift helicopter operated near maximum gross weight. Fat Cow missions flown by the CH-47 crews demanded great attention to detail and presented the mission planners, flight crew, and leaders numerous challenges.

TF Hawk directed that missions flown in the AO would have over-the-horizon communications capability. TFAB heavy lift assets were outfitted with the standard military avionics package that included numerous line-of-site (LOS) radios. Because of the mountainous terrain throughout the AO, traditional LOS communications equipment proved ineffective. The TFAB overcame this limitation by employing a C^2 UH-60 helicopter operating in a restricted operations zone (ROZ) during missions. The C^2 aircraft operated at an altitude that allowed continous communications with the attack helicopter elements on the mission. However, the CH-47s were not assured of radio contact with the C^2 aircraft or the attack helicopters while on the ground conducting the refuel operation. The unit overcame this problem by using two Tactical Satellite (TACSAT) operators on the mission. The United States Air Force (USAF) TACSAT operator was responsible for communicating with the Airborne Command and Control Center (ABCCC) fixed-wing asset, and the U.S. Army TACSAT operator communicated with the TFAA Tactical Operations Center (TOC) and the inbound attack helicopters to be refueled.

Refueling is inherently dangerous and requires extensive planning and safety precautions. The unit used established procedures and guidance contained in a Tactical Standing Operating Procedure (TACSOP). This guidance was put into use with only minor alteration because of the new equipment. The TF conducted extensive pre-mission planning, dry runs, and full-site layout rehearsals at the TFAA to build teamwork, synchronization and proficiency among the Fat Cow mission personnel. The heavy lift unit organized two refuel teams to support Fat Cow missions. Composition of each team was four unit fuel handlers with the Military Occupation Skill (MOS) 77F.

Once established at the TFAA, the TFAB headquarters identified potential Fat Cow refueling sites. Very limited intelligence products were available for identifying refueling sites so a 1:250,000-scale map was used to

locate primary and alternate refueling sites throughout the AO. Based on METT-T considerations, the heavy lift helicopters were allowed to reconnoiter the selected sites prior to anticipated missions. Those reconnaissance missions revealed that the majority of the selected sites were unusable for CH-47 Fat Cow operations. Sites were rejected due to excessive slope, uneven terrain, or simply that no open area existed as was indicated by the map reconnaissance. Crews identified acceptable sites throughout the AO and passed the locations on to the TFAB.

Additionally, METT-T considerations dictated a need for site security to accompany each Fat Cow sortie. This requirement stemmed from intelligence reports issued by higher headquarters, which warned of potential threat and the fact that the intentions of local population were uncertain. With the Forward Area Refueling Equipment (FARE) set up inside the CH-47, combined with the support personnel required to conduct the refuel operation, limited space was available for security force personnel. The unit conducted static-load training with a fully configured aircraft, mission equipment, and personnel to determine the appropriate loading configuration.

This training facilitated the maximization of available internal cargo space, and allowed the crew to coordinate and synchronize the actions of mission personnel. The final mission configuration derived from the static-load drills was four aircraft crew, four refuelers, two TACSAT operators, one interpreter, and 18 infantrymen. This maximization of internal cargo space meant no seats were available for non-crew members on the mission. TFAB personnel applied for, and received, a seats-out waiver from the major Army command (MACOM). This waiver was critical to the success of the Fat Cow mission when a security force was required. The unit identified this additional risk factor and accounted for it during the risk assessment and briefing process.

Lessons Learned:

☞ A successful Fat Cow FARP operation is the final product of a series of progressive skill-building programs including dry runs, mission rehearsals exercise (MRE) and full-site layouts.

☞ Extensive planning, including dry runs and rehearsals, supported successful execution of the operation by synchronizing support personnel, crew, and security forces.

☞ Fat Cow mission elements should have enough security to defend against anticipated threat.

☞ Infantry can be used as site security during Fat Cow missions but limit the amount of available fuel for the mission.

☞ Inadequate security will degrade the refuel mission of its ability to protect itself long enough to move.

☞ A MACOM waiver for seats out is required for the execution of the Fat Cow mission if security forces are utilized.

☞ TACSAT can replace certain links previously provided by conventional LOS communications.

☞ A well thought-out, properly executed plan with appropriate TACSAT resources can improve communications availability, reliability, and flexibility.

☞ TACSAT overcomes the limitations of mountainous terrain on traditional LOS communications equipment.

CH-47 Aerial Recovery of Aircraft

Aerial recovery is accomplished by preparing an aircraft for movement, attaching suitable airlift recovery equipment, connecting it to a lifting helicopter, and flying the aircraft to a maintenance area. To accomplish this mission, the TFAB developed the concepts of the Deliberate DAART and the DAART Coordination Center (DCC) to control it.

The DCC was an operations cell located within the Deep Operations Coordination Center (DOCC), staffed by an aviation Liaison Officer (LO) who was well versed in aviation operations. The mission of the DCC was to alert subordinate units of a recovery mission, facilitate the organization of essential equipment and personnel, and track the progress of the mission through completion. The DCC used established essential elements of information (EEI) such as go/no-go, and abort criteria as a framework for mission execution. To facilitate a synchronized and focused effort, DCC personnel used a preplanned mission execution matrix checklist. The TF assigned level-200 numbers for normal missions while level-400 numbers were reserved for DAART missions. The use of execution matrix line numbers ensured the correct matrix was used for the recovery effort, eliminating confusion throughout the operation.

The TF tailored the procedures used in the recovery of aircraft and crews depending on the location of the downed aircraft. Location largely determined the capability of opposing forces to hinder the recovery operation and the capability of friendly forces to recover the downed aircraft. Because the most dangerous and difficult DAART missions would have been those within enemy-held terrain, the TF heavy lift assets were tasked to conduct downed aircraft recovery operations between the TFAA and the FLOT.

The Deliberate DAART aircraft and support personnel were not on standby, but were activated by the DCC. The DAART package included two AH-64 armed escorts, one C^2 UH-60, one UH-60 MEDEVAC, one UH-60 with security team elements, and one CH-47. Based on METT-T considerations, the TF commander would alter the overall composition. The DAART package would conduct a recovery only during daytime hours.

Aircraft recovery, according to **FM 1-500, *Army Aviation Maintenance,*** is the responsibility of the aviation operational unit, using its aviation unit maintenance (AVUM) assets and within the limits of its organic lift capability. Supporting TF aviation intermediate maintenance (AVIM) units provide back-up recovery support when aviation units are overloaded or complex aircraft disassembly is required. Recovery operations required a highly coordinated effort among the TF elements. As with most operations, DAART has both advantages and disadvantages that must be considered by the TF headquarters before implementation.

- **Advantages:**
  - ✔ **Faster recovery times, reducing battlefield exposure time.**
  - ✔ **Fewer route reconnaissance requirements.**
  - ✔ **Less disassembly required.**
  - ✔ **Less security escort requirements.**

- **Disadvantages:**
  - ✔ **Total loss of aircraft being recovered if rigging equipment fails.**
  - ✔ **Exposes heavy lift helicopters to enemy action.**

In preparation for aircraft recovery, the DCC identified aircraft recovery teams for the DAART. The team consisted of maintenance personnel who were trained in preparing aircraft for recovery. The team officer in charge (OIC) ensured that appropriate rigging and recovery equipment was identified, available, and prepared for the short-notice recovery missions. The size and composition of the team was dependent on the type of disabled aircraft.

Lessons Learned:

- ☞ **Incorporate the DCC into the DOCC for C^2 of DAART missions.**
- ☞ **Incorporate the CH-47 aircraft into Deliberate DAART aviation operations.**

CH-47 External/Internal Load Operations

TF Hawk employed CH-47s for internal logistical resupply missions to the Forward Operations Base (FOB), along with external transport of artillery systems throughout the AO. TF heavy lift helicopters conducted internal resupply missions that were planned and executed according to Army doctrine. These operations served to establish the framework for cooperation between the requesting/receiving unit and the CH-47 element. This cooperation was essential for smooth, efficient and safe logistical resupply.

The spacious cargo compartment of the CH-47 was designed to accommodate many standardized loads. TF CH-47 aircraft were outfitted with the Helicopter Internal Cargo Handling System (HICHS). This system of guides and rollers mounted to the floor of the aircraft eased the loading and unloading of cargo, decreased turnaround time, and enabled faster and more efficient cargo movement. This internal cargo system can also accommodate the standard USAF 463L pallet, making it very versatile. In addition to the payloads previously listed, the heavy helicopter was also capable of transporting other less typical loads because of its heavy lift capability, versatility, speed, and maneuverability. Although the CH-47 unit was not often tasked to conduct these missions, early planning, training, and preparation increased the likelihood of a successful operation.

As part of predeployment preparation, the CH-47 unit coordinated with numerous TF units including a Multiple Launch Rocket System (MLRS) Battalion. This prior coordination revealed that the MLRS unit was unfamiliar with the rigging procedures of the Army Tactical Missile System (ATACMS) and had never conducted the External Air Transport (EAT) system for moving its equipment. Furthermore, **Field Manual 6-60, *MLRS Battery Operations,*** indicated this system had a no-drop tolerance for EAT. The CH-47 unit preferred the EAT system of the ATACMS because of the incompatibility of the weapons system with the CH-47 HICHS.

Internal loading of ATACMS required lengthy on- and off-load times and additional equipment. Lengthy off-load times to resupply forward areas, such as the FOB, would needlessly subject limited heavy lift helicopters to additional risk. Direct coordination with Natick Labs, the U.S. Army slingload approval authority, revealed this restriction was based on the cost of the weapons system. In fact, approved sling-load rigging procedures were published for this system. The heavy lift unit obtained the publication and familiarized the flight crews with the rigging procedure.

Lessons Learned:

☞ **External loading is quicker and preferred because it expedites the delivery of critical items.**

☞ **External loading enables aircraft to move supplies and equipment too large for the internal cargo area.**

☞ **Supplies can be quickly moved on 463L pallets internally by heavy lift assets from improved areas such as the TFAA.** However, this proves difficult when the receiving unit is located at an unimproved location without the proper forklift support to download the cargo. In this situation, multiple cargo nets are the preferred method of cargo delivery.

☞ **The CH-47 can External Air Transport (EAT) the Guided Missile Launch Assembly (GMLA) which contains the Army Tactical Missile System (ATACMS).**

☞ **Establishing a direct line of communications between TF support units, Natick Labs, and the U.S. Army Quartermaster School ensures that the most up-to-date information is available for use by forward-deployed units.✪**


CALL
IMPROVED APPLICATION

The Battle Command Training Program (BCTP) and Army Simulations

by LTC Jeff Cobb and Mr. Bob Fielding

The over-arching theme of this section is the effectiveness of the Battle Command Training Program (BCTP) and the use of simulations in support of contingency operations. The team found that, overall, the BCTP assists units in developing processes and building teams to plan and conduct operations. The BCTP observed the V Corps Deep Operations Coordination Center (DOCC), which was the core of the TF Hawk DOCC, in a Warfighter immediately prior to the deployment. The leadership of the TF all agreed that the involvement of the BCTP enhanced the ability of the DOCC to effectively plan deep operations. The team also discovered that the BCTP and exercise units need to re-look the STARTEX agreements for exercises to ensure that the conditions experienced by the units are realistic. Finally, the Army needs to take a close look at the current family of simulations. Current models do not fully support the requirements of the BCTP and units to conduct rigorous, realistic exercises.

The Battle Command Training Program

The BCTP is the Army's capstone Combat Training Center (CTC). The mission of the BCTP is to:

a. Support realistic, stressful training for Army Forces (ARFOR) and the Joint Force Land Component Commander (JFLCC), and

b. Assist the Chief of Staff Army (CSA) in fulfilling his obligation to provide trained and ready units to win decisively on the modern battlefield and to conduct contingency operations worldwide.

The BCTP provides command and battle staff training for brigade, division, and corps commanders, their staffs, major subordinate commanders (MSC), and supporting special operations forces (SOF), using simulation centers worldwide. It provides the framework to conduct command and control training from brigade to Joint Task Force (JTF)-level operations. The BCTP provides a "free-thinking" opposing force (OPFOR), certified observer controllers/trainers, and senior observers as mentors and coaches.

Corps Battle Simulation

The BCTP currently uses the Corps Battle Simulation (CBS) as its exercise driver. CBS is a command post exercise (CPX) driver, used primarily to train corps and division command and staff personnel operating in their tactically deployed command posts. CBS is a training model, not an analytical model. It is an attrition-based model at the aggregate level. The model forces conflict to drive command post operations and planning.

CBS employs a central VAX computer and many netted MicroVAX computers to generate the simulation. This computer network, coupled with the simulation software and the workstation controllers, "fight" the battle in real time, that is, one hour of game time is equal to one hour of clock time. CBS has the capability to play both belligerent forces that engage in combat when an enemy is detected and within weapons range, and non-belligerent forces that do not engage in direct fire combat even though an enemy is detected and within weapons range. The workstation controllers interact with the simulation via the workstation equipment and portray subordinate unit functions.

The unit used CBS, Tactical Simulation (TACSIM), and Joint Conflict and Tactical Simulation (JCATS) for simulation support during the mission rehearsal exercise (MRE). The Army does not have any single simulation model that can be used for deployment training and operations. CBS and TACSIM were used to portray the intelligence and JCATS provided the detail required for mission execution.

The Effectiveness of the BCTP

In discussions with senior leaders in the Task Force, the general consensus was that the recent unit Warfighter Exercise (WFX), and the events leading up to the exercise, were effective in preparing the Task Force to plan deep operations. The TF Deputy Commander, the Attack Helicopter Regimental Commander, and the Force Artillery Commander all believed that the WFX assisted the units and the DOCC in building and refining the DOCC processes, and forming and solidifying the DOCC team. The aviation commander stated that the mechanics remain the same for both the high-intensity combat exercised during the BCTP process and the current contingency operations. Several of the commanders stated that the Senior Observers and their involvement in the recent WFX were of great assistance to the DOCC team. These senior retired officers provided realistic insight into deep operations and the role of deep operations in prosecuting the fight.

The leaders raised several issues with the BCTP format. First was the need to get to a higher level of fidelity in the execution of operations. The leadership would like to get down to the entity level in execution to provide more realistic feedback to the tactical operations centers. Second, the WFXs do not provide the same stress and rigor of actual operations because there are no soldiers on the ground in harm's way. One commander stressed the need for units to consider the people aspect of decisions during WFXs and not treat the soldiers as icons. Third, WFXs do not train units to operate over the distances simulated during the exercises (mainly a communications issue).

The leaders identified several differences between the WFX and the current operation. The first was the greater level of detail executed in all aspects of the DOCC operations versus that of a WFX or other simulations-driven exercise. This affected the battle rhythm of the DOCC and the attack aviation unit. A corps will typically plan and execute at least two attack turns (against separate targets) per unit per night. In this operation, the DOCC focused planning for at least 24 hours on one troop-level operation. One leader expressed that one operation every 48 hours is more realistic. The targeting and planning cycle for the unit went out 96 hours.

Targeting of threat air defense systems was a major concern in the TF. The level of detail desired in the current operation was much greater than that of WFX operations. Specifically, the DOCC and intelligence sources are normally focused on the target area during WFX deep operations. Units tend to discount the entire short-range air defense system (mainly shoulder-fired systems), and small arms densities located between the Forward Line of Troops (FLOT) and the target area. In this operation, these weapon systems were the primary focus.

The level of detail and attention directed toward the use of Army Airspace Command and Control (A^2C^2) measures was much greater in the current operation than during the WFX. This is an area that the BCTP would like to see receive more attention by exercise units. One major A^2C^2 area of concern was de-conflicting attack aviation routes and field artillery firing positions. This is an area that is not routinely exercised during WFXs. In Albania, this was an area with which the TF had to deal. The problem is that there is no penalty for failing to use proper measures. The BCTP is unable to get most units focused in this area.

Lessons Learned:

☞ **The BCTP structure and its focus on processes assist units in preparing for contingency operations.** The program's focus on training senior commanders and staff, and reinforcing processes is effective.

☞ **Units are not capable of conducting multiple battalion-level deep attacks each night.**

☞ **Units do not conduct targeting to the level of detail during WFXs that TF Hawk was required to do during its contingency operation.** WFXs need to penalize units that fail to recognize the significant threat posed by short-range air defense and small arms to helicopters conducting deep operations.

☞ **Units do not conduct A^2C^2 operations to the level of detail required of TF Hawk.** Units need to take advantage of WFXs to use doctrinal A^2C^2 measures. The exercise needs to penalize units that fail to properly employ these measures.

Exercise Design

The observation of TF Hawk raised several issues in the area of exercise design. These issues may be addressed in several forums including STARTEX conferences and White Cell meetings. Many of the issues are not new to the units or to the BCTP. The focus of this discussion is to highlight possible areas where the BCTP and units can increase the realism and rigor of WFXs.

The TF experienced difficulty integrating itself into the joint air operations campaign during the initial stages of the operation. Most of this was attributed to the limited exposure of the unit in joint air operations outside of exercises. The WFX, while exposing the unit somewhat to the friction and coordination complexities of joint air operations, did not fully prepare the unit for operations in Albania. The BCTP, especially on corps-level exercises, attempts to get units out of their comfort zone, normally the tactical level, and get them into the operational level of war. The vertical and horizontal integration role of the corps headquarters is key to this focus.

The terrain and weather had significant effects on the operations of the TF. Mountainous terrain, man-made hazards, and weather, from the rear base of operations through the engagement areas, proved to be challenging to the planners and operators during mission rehearsals. The CBS software used by the BCTP does not replicate the terrain in enough detail, and does not replicate the natural and man-made hazards faced by the aviators at all. In addition, CBS has only a limited weather effects capability; the scripted weather is briefed to all the players.

Units conducting WFXs typically have multiple intelligence assets at their disposal throughout the exercise. A number of these assets are beyond their own organic assets. These may include the Joint Surveillance and Target Attack Radar System (JSTARS), Unmanned Aerial Vehicles (UAV) (Predator and Hunter), imagery, Guardrail, U2, and other theater and national assets. TF Hawk had access to all of these assets, but it did not have tasking authority to focus the assets on its upcoming missions. The only asset over which the TF had tasking authority was the Hunter UAV (the unit also used its counter-fire radars and pilot debriefings as intelligence sources). The unit could send requests for information (RFIs) to the theater to get coverage from JSTARS, Predator, Guardrail and U2.

Communications were critical to success in the contingency operation. Many unit leaders believe that communications are not emphasized enough during a BCTP WFX. The TF had 13 tactical satellite radio sets. It relied heavily on this communications link due to the terrain and the distances over which the unit operated. The unit was not authorized this number of radios on its MTO&E (the authorized number was three). The DOCC also used FM and UHF communications links.

Some key leaders would like to see communications stressed during a WFX. Units, because of the close proximity of operations centers and the battle simulation center, do not have to use satellite and UHF communications; FM communications suit their needs and are easier to use. One of the concerns with this set-up was that satellite communications are difficult to operate and maintain and the knowledge, skills, and abilities associated with this form of communication are very perishable.

Lessons Learned:

☞ **TF Hawk was under supply and maintenance constraints during the deployment.** The BCTP STARTEX agreements need to reflect these constraints during WFXs so units do not become accustomed to operating in an unconstrained environment.

☞ **The unit believed that the BCTP does stress the requirement to conduct joint air operations coordination.** The BCTP attempts to get corps to focus more on vertical and horizontal integration, which includes coordination in the joint arena.

☞ **During WFXs, most units do not take advantage of the joint targeting assets available.** Units should practice this during WFXs and receive credit when it is done well. This applies to all battlefield operating systems with sensors that reach beyond the capability of the unit to put fires on the target (either by restrictive rules of engagement or weapon systems restrictions).

☞ **The BCTP WFX does reinforce basic processes for JAG.** However, the BCTP should look at interjecting at least one scenario during an exercise which will stress the entire operational law system and should include legitimate military targets intermingled with refugees or protected sites. Contingency operations with restrictive ROE require more detailed and refined processes. There is a need to stress the requirement for these refined processes during WFXs.

☞ **CBS does not provide enough detail in the areas of terrain, hazards, and weather.** This may lead to units taking short cuts in these areas during the execution phase of exercises. Future models need to properly replicate these challenges to ground and air operations.

☞ **Units do not always have the intelligence assets available during contingency operations that they have during WFXs.** There are a lot of units competing for limited resources.

☞ **Units can affect joint targeting and attack operations by passing their targetable data vertically and horizontally to elements that have the resources to attack the targets.**

☞ **Units do not take advantage of all training exercises to stress communications and the perishable skills associated with complicated communications systems.**

Army Family of Simulations

The BCTP uses a family of simulations to drive the WFXs. The BCTP and the exercise units continuously search for ways to better simulate (not replicate) the capabilities and limitations of the systems available to both the exercise units and the WCOPFOR. The BCTP conducts periodic reviews of the CBS parameters developed to provide a realistic simulation of systems. The parameters committee consists of battlefield operating systems chiefs and key subject matter experts (SMEs) from the operations groups, as well as simulation experts and contractors. These members attempt to solicit input from the branch schools. The committee recommends changes to computer code (very expensive and the least likely course of action) or workarounds (human actions designed to simulate system capabilities or TTP) to the BCTP leadership.

The CBS-driven exercise provided excellent staff training, however, the TF Hawk leadership stated it did not allow for planning down to pilot level. During the MRE, the simulation model JCATS was used to provide the execution fidelity the commanders and staff desired. Using JCATS would have allowed the pilots to plan and brief each mission, if time had been available. The issue is time and personnel requirements to replicate deep operations to the pilot level. The combination of simulations and additional time and resources would provide the training detail desired.

TF Hawk pre-deployment MRE was conducted on short notice at the Warrior Preparation Center (WPC). CBS, JCATS, TACSIM with HRSS and UAV were the simulations used to support the exercise. CBS, TACSIM and UAV were primarily used to provide intelligence while JCATS provided the detail for mission execution. Although no one simulation has the capability to provide a unit deploying on short notice the complete array of input and feedback, the mix of CBS and JCATS provided the detail and staff coordination requirements necessary to accomplish the mission.

Lessons Learned:

☞ **The use of CBS for a BCTP WFX meets all requirements for training division and corps staffs.** If units want to plan and conduct mission briefs, they have the ability to do so now. The use of other simulations for MREs may be a viable option and the BCTP should explore the use of other training simulations that may be useful for MREs.

☞ **The BCTP should review other training simulations to determine their suitability of use for MREs.**

Summary

The results of this study indicate that the BCTP executes its mission to prepare commanders and their staffs to execute combat operations. The focus of the BCTP on battle command and the associated processes does work. However, both the BCTP and the exercise units need to re-look the level of rigor of the exercises to get the units focused on details in the areas of targeting, A^2C^2, weather and terrain, and integrating into the joint fight. The Army needs to design and field a simulation system that provides more detailed feedback to the commanders and their staffs, and a greater level of fidelity in the execution of missions. CBS works, but the field requires more.✪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APPENDIX A
Glossary

- A -

A/C: air-conditioning
A^2C^2: Army Aviation Command & Control
AA: assembly area
AAA: anti-aircraft artillery
AAR: after-action review/report
ABCCC: Airborne Command, Control and Communications
ABCS: Automated Battle Command System
ABF: attack by fire
abn: airborne
ACE: analysis and control element
ACO: Airspace Control Order
ACP: Air Control Point
acqn: acquisition
AD: Air Defense
ADAPCP: Alcohol and Drug Abuse Prevention Counseling Program
ADE: Assistant Division Engineer
admin: administration/administrative
ADOCS: Automated Deep Operations Coordination System
ADRG: Arc Digitized Raster Graphic
ADSI: Air Defense Systems Integrator
AEPDS: Advanced Electronic Processing and Dissemination System
AFATDS: Advanced Field Artillery Tactical Data System
AFOR: Albanian Forces
AFU: ammunition fire unit
AG: Adjutant General
AGL: above ground level
AHA: ammunition holding area
AHR: Attack Helicopter Regiment
ALO: Air Liaison Officer/Office
AM: amplitude modulation (communications/radios)
AMC: Army Materiel Command; Air Mobility Command
ammo: ammunition
AMSS: Army Materiel Status System
AO: area of operations
AOR: area of responsibility
AR: armor

ARC: American Red Cross
ARCS: Aerial Rocket Control System
ARG: Amphibious Ready Group
arty: artillery
ASAS: All-Source Analysis System
ASE: All-Source Enclave
ASI: All-Source Intelligence
ASIS: All-Source Intelligence Section
ASOC: Air Support Operations Center
ASOG: Air Support Operations Group
ASP: Ammunition Supply Point
ASR: Air Support Request
asst: assistant
ATACMS: Army Tactical Missile System
ATCCS: Army Tactical Command and Control System
ATI: artillery target information
ATKHR: Attack Helicopter Regiment
ATM: Aircrew Training Manual
atk: attack
ATO: Air Tasking Order
ATS: Air Traffic Services
AVIM: aviation intermediate maintenance
AVLB: Armored Vehicle Launch Bridge
avn: aviation
AVO: Air Vehicle Operator
AVUM: aviation unit maintenance
AWACS: Airborne Warning and Control System
AWR: Airworthiness Release

- B -

BCCA: Base Camp Coordinating Agency
BCE: Battlefield Coordination Element
BCT: Brigade Combat Team
BDA: Battle Damage Assessment
bde: brigade
bn: battalion
BOS: Battlefield Operating System (Maneuver, FS, AD, C^2, Intelligence, Mobility/Survivability, CSS)
Br Im: branch immaterial
btry: battery

- C -

C^2:	command and control
C^2W:	command and control warfare
CA TST:	Civil Affairs Tactical Support Team
CAB:	Corps Aviation Brigade
CALFEX:	Combined Arms Live Fire Exercise
CAOC:	Combined Air Operations Center
CAS:	Close Air Support
cbt:	combat
cdr:	commander
CFE:	Conventional Forces, Europe
CG:	commanding general
CH:	Chaplain (also Chap); chief
CHS:	Combat Health Support
CI:	counterintelligence
CID:	Criminal Investigation Division
CINC:	Commander in Chief
CIS:	Combat Information System
CL:	class (e.g., CL V = Ammunition)
CM&D:	Collection Management and Dissemination
CM:	chemical; collection manager
cmd:	command
CMMC:	Corps Materiel Management Center
CMOC:	Civil-Military Operations Center
co:	company
COL:	colonel
COMINT:	communications intelligence
Comm/commo/ comms:	communications
COMSEC:	communications security
constr:	construction
coord:	coordinator/coordination
CoS:	Chief of Staff
CP:	command post; checkpoint
CPG:	co-pilot gunner
CPT:	captain
CSAR:	combat search and rescue
CSB:	Corps Support Battalion
CSG:	Corps Support Group
CSM:	Command Sergeant Major
CSRT:	Customer Support Response Team
CTAPS:	Contingency Theater Automated Planning System
CWO:	Chief Warrant Officer (CW2/3/4/5)

- D -

D^{3}A:	Decide, Detect, Deliver, Assess
DA:	Department of the Army
DAART:	Downed Aircrew and Aircraft Recovery Team
DART:	Downed Aircraft Recovery Team
DCG:	Deputy Commanding General
DCG Avn:	Deputy Commanding General for Aviation Operations
DCO Grnd:	Deputy Commanding Officer for Ground Operations
DDL:	Digital Data Link
def:	defense
dep:	deputy
det:	detachment
DHS:	Defense HUMINT Services
DIA:	Defense Intelligence Agency
distr:	distribution
div:	division
DLA:	Defense Logistics Agency
DNBI:	disease and non-battle injuries
DNVT:	Digital Non-secure Voice Terminal
DOCC:	Deep Operations Coordination Cell
DPC:	Deployment Processing Center
DS:	direct support
DSN:	Defense Switching Network
DTED:	Digital Terrain Elevation Data
DTW:	Direct Threat Warning

- E -

EA:	engagement area
EAC:	Echelon Above Corps
EDC:	Electronic Data Component
EDRE:	Emergency Deployment Readiness Exercise
elem:	element
ELINT:	electronic intelligence
enl:	enlisted
EN/engr:	engineer
EO:	Equal Opportunity
ETAC:	Enlisted Terminal Attack Controller
EW:	electronic warfare

- F -

FA:	field artillery
fac:	facility (e.g., dining facility)
FAIO:	Field Artillery Intelligence Officer
FAO:	Foreign Area Officer
FARP:	Forward Arming and Refueling Point
FAST:	Forward Area Support Team; Forward Area Support Terminal
fax:	facsimile (i.e., FAX machine)
FCC:	Fire Control Computer
FCE:	Fire Coordination Element
FDS:	Fire Direction System
fin:	finance
FLIR:	Forward Looking Infrared
FLOT:	Forward Line of Own Troops
FM:	frequency modulated (communications/radios)
FOB:	Forward Operating Base
FP:	Firing Point; Force Protection
FRAGO:	fragmentary order
FS:	fire support
FSC:	Fire Support Cell
FSCM:	Fire Support Coordination Measures
FSCOORD:	Fire Support Coordinator
FSE:	Fire Support Element
FSO:	Fire Support Officer/Office
fwd:	forward

- G -

G-1:	General Staff Personnel and Administration Officer/Office
G-2:	General Staff Intelligence Officer/Office
G-3:	General Staff Operations Officer/Office
G-4:	General Staff Logistics Officer/Office
G-5:	General Staff Civil Affairs Officer/Office
G-6:	General Staff Communications Officer/Office
GCCS-A:	Global Command and Control System-Army
GCS:	Ground Control Station (UAV)
GDT:	Ground Data Terminal (UAV)
gen:	generator
GID:	Geospatial Information Division
GIM:	Geospatial Information Management

gp/grp: group
GP: general purpose
gd/gnd/grd: ground
GS: general support

- H -

HAC: HUMINT Analysis Cell
HARM: Homing Anti-Radar Missile
HAZMAT: hazardous material
Hel sqdn: helicopter squadron
HEMTT: Heavy Expanded Mobility Tactical Truck
HHC: headquarters and headquarters company
HHD: headquarters and headquarters detachment
hist: history/historian
HMMWV: High-Mobility Multi-purpose Wheeled Vehicle
HNS: host-nation support
HOC: HUMINT Operations Center
HPTL: High Payoff Target List
HQ: headquarters
HUMINT: human intelligence

- I -

IAE: Imagery Analysis, Europe
IAW: in accordance with
ICE: individual chemical equipment
ID: identification
IDP: internally displaced persons
IEF: initial entry force
IFSAS: Initial Fire Support Automated System
IG: inspector general
IIR: initial impressions report
ILEX: (Commercial Contractor)
IMINT: imagery intelligence
inf: infantry
info: information
INMARSAT: International Maritime Satellite
INSCOM: Intelligence and Security Command
intel: intelligence

INTSUM: intelligence summary
IRAPS: Interim Remote Air Picture System
IRR: Individual Ready Reserve
ISO: Integrated Staff Office
ISSO: Information Systems Security Officer

- J -

JAC: Joint Analysis Center
JAG: Judge Advocate General
JBS: Joint Broadcasting System
JCS: Joint Chiefs of Staff
JDISS: Joint Deployable Intelligence Support System
JIC: Joint Inspection Certification

JMICS: JWICS Mobile-Integrated Communications System
JSEAD: Joint Suppression of Enemy Air Defenses
JSIVA: Joint Service Integrated Vulnerability Assessment
JSTARS: Joint Surveillance/Target Acquisition Radar System
JTF: joint task force
JTF-NA: Joint Task Force NOBLE ANVIL
JTIDS: Joint Tactical Information Distribution System
JVB: Joint Visitors' Bureau
JWAC: Joint Warfare Analysis Center
JWICS: Joint Worldwide Intelligence Communications System
JWO: Joint Warfare Officer
JWS: Joint Warfare Section

- K -

K-9: military working dogs
KFOR: Kosovo Force
KP: kitchen police
kts: knots

- L -

LAN: local area network
LAT: latitude

ldr: leader
LO: liaison officer
LOCE: Linked Operations Capability, Europe
log: logistics
long: longitude
LRS: long-range surveillance
LRSP: Long-Range Surveillance Platoon
LSA: life support area
LT: lieutenant
LTC: lieutenant colonel

- M -

maint: maintenance
MAJ: major
MASH: mobile army surgical hospital
MASINT: measurements and signatures intelligence
MCS: Maneuver Control System
MDCI: multi-discipline counterintelligence
mech: mechanized
MEDEVAC: medical evacuation
met: meteorological
METT-TC: mission, enemy, terrain, time, and troops available, civil
MGSM: Mobile Ground Station Module
mgt: management
MI: military intelligence
MIES: Modernized Imagery Exploitation System
mil: military
MKT: Mobile Kitchen Trailer
MLRS: Multiple Launch Rocket System
MMC: Materiel Management Center
mob: mobility
MOI: message of interest
MOS: military occupational specialty
MP: Military Police Corps
MRE: mission rehearsal exercise
MSC: major subordinate command
MSE: mobile subscriber equipment
MSG: master sergeant
MSIP: Multi-Spectral Image Processor
MSR: main supply route

MTA: Military Technical Agreement
mtr: motor
Mule: small commercial utility vehicle
mvr bde: maneuver brigade
MWR: morale, welfare, and recreation

- N -

NAI: Named Area of Interest
NATO: North Atlantic Treaty Organization
NBC: nuclear, biological, chemical
NCO: noncommissioned officer
NCOIC: noncommissioned officer in charge
NCS: net control station
NGF: naval gunfire
NIMA: National Imagery and Mapping Agency
NIPR: Non-secure Internet Protocol Router
NIPRNET: Non-secure Internet Protocol Router Network
NIST: National Intelligence Support Team
NOC-I: National Operations Center-Imagery
NOC-P: National Operations Center-Pentagon
NOTAM: notice to airmen
NPC: NIMA Production Cell
NVG: night-vision goggles

- O -

OAF: Operation ALLIED FORCE
off: officer
OIC: officer in charge
OPAREA: operational area
OPFAC: operational facilities
op/opns/ops: operations
OPTEMPO: operation tempo
ORBAT: order of battle
ord: ordnance

- P -

PAI:	personal asset inventory
PAO:	public affairs office(r)
PB:	pre-briefed
PC:	personal computer
pers:	personnel
PERSCOM:	Personnel Command
PFC:	private first class
PIR:	priority intelligence requirement
plt:	platoon
PM:	program manager
PMO:	Provost Marshal Office
POL:	petroleum, oils, lubricants
POLAD:	political advisor
PP-CAS:	Pre-planned Close Air Support
prot:	protection; protestant
PSD:	Protective Service Detail
PSYOP:	psychological operations
PTWS:	Point Target Weapon System
PV2:	Private E2
PZ:	pick-up zone

- Q -

QM:	quartermaster
QRF:	Quick Reaction Force
QRS:	Quick Reaction System

- R -

R&S:	reconnaissance and surveillance
RADAR:	radio detection and ranging
REMBASS:	Remotely Monitored Battlefield Sensor System
rep:	representative
RFI:	request for information
RM:	resource manager/management
ROE:	Rules of Engagement
RON:	remain overnight
ROZ:	restricted operations zone

RP: release point
rqmts: requirements
RSS: Religious Support Section
RTO: Radio Telephone Operator
RWS: remote work station

- S -

S-1: Personnel and Administration Officer/Section (battalion/brigade level)
S-2: Intelligence Officer/Section (battalion/brigade level)
S-3: Operations Officer/Section (battalion/brigade level)
S-4: Support Officer/Section (Combat Service Support) (battalion/brigade level)
SACEUR: Supreme Allied Commander, Europe
SALUTE: size/activity/location/unit/time/equipment
SAM: surface-to-air missile
SATCOM: satellite communication(s)
SCIF: Secure Compartmented Information Facility
scty: security
SEAD: suppression of enemy air defense
sec: section
SETAF: Southern European Task Force
SF: Special Forces
SFC: sergeant first class
SGM: sergeant major
SGS: Secretary of the General Staff
SGT: sergeant
SHAPE: Supreme Headquarters Allied Powers, Europe
sig: signal
SIG: Special Initiatives Group
SIGINT: signals intelligence
SINCGARS: Single-Channel Ground and Airborne Radio System
SIPRNET: Secure Internet Protocol Router Network
SITMAP: situation map
SITREP: situation report
SJA: Staff Judge Advocate
SOCCE: Special Operations Command and Control Element
SOCOORD: special operations coordinator
SOI: signal operation instructions
SOR: specific operational requirement
SP: self-propelled; start point
SPC: specialist

spec:	special
spt grp:	support group
sqdn:	squadron
Sr:	senior
SSG:	staff sergeant
STB:	Special Troops Battalion
STU:	secure telephone unit
surg:	surgeon/surgical
surv:	survivability
svc:	service
SWO:	staff weather officer/office/ operations
SYSCON:	system control

- T -

TAA:	tactical assembly area
TACSAT:	tactical satellite
TADS:	target acquisition designation sight
TALCE:	tanker-airlift control element
TASM:	tactical air space module
tech:	technician
TENCAP:	tactical exploitation of national capabilities
TF:	task force
TF HQ:	task force headquarters
THST:	tactical headquarters support team
Title X:	portion of U.S. Code which applies to the armed forces
tm:	team
TMDA:	target management database array
TNT:	terrain/NIMA team
TOC:	tactical operations center
TOE:	table(s) of organization and equipment
TOPSCENE:	tactical operational preview scene
TOT:	time on target
TPU:	tank and pump unit
tlr:	trailer
trps:	troops
TS:	TROJAN SPIRIT
TSB:	theater staging base
TSM:	Training and Doctrine Command (TRADOC) System Manager

TST: tactical support team
TTP: tactics, techniques and procedures

- U -

UAV: Unmanned Aerial Vehicle
UBL: unit basic load
UMR: unit manning report
UN: United Nations
U.S.: United States
USAF: United States Air Force
USAREUR: United States Army, Europe
USMC: United States Marine Corps

- V -

VCR: video cassette recorder
VIP: very important person
VTC: video teleconference